

Appl. No. 10/812,464
Amdt. dated April 21, 2005
Reply to Office Action of January 21, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

Claim 1 (currently amended): An apparatus, comprising:

an adhesion layer abutting a conductive pad;

a molybdenum-containing barrier layer abutting said adhesion layer;

a wetting layer abutting said molybdenum-containing barrier layer; and

high tin content solder material abutting said wetting layer, said high tin content solder material having a least about 75% tin by weight.

Claim 2 (original): The apparatus of claim 1, wherein said molybdenum-containing barrier layer comprises a material containing at least about 90% (atomic) molybdenum.

Claim 3 (original): The apparatus of claim 1, wherein said high tin content solder material comprises a material containing at least about 90% (by weight) tin.

Claim 4 (original): The apparatus of claim 1, further comprising said conductive pad abutting at least one layer of low k dielectric material.

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Claim 5 (original): The apparatus of claim 4, wherein said at least one layer of low-k dielectric material comprises at least one layer of carbon doped oxide.

Claim 6 (original): The apparatus of claim 1, wherein said wetting layer is substantially subsumed in said high tin content solder material forming an intermetallic compound layer.

Claim 7 (withdrawn): A method comprising:
providing at least one interlayer dielectric having at least one abutting conductive pad;
forming an adhesion layer on at least a portion of said at least one conductive pad;
forming a molybdenum-containing barrier layer on at least a portion of said adhesion layer;
forming a wetting layer on at least a portion of said molybdenum-containing barrier layer; and
forming a high tin content solder plug on at least a portion of said wetting layer.

Claim 8 (withdrawn): The method of claim 7, wherein forming said molybdenum-containing barrier layer comprises forming a molybdenum-containing barrier layer containing at least about 90% (atomic) molybdenum.

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Claim 9 (withdrawn): The method of claim 7, wherein forming said high tin content solder plug comprises a high tin content solder plug containing at least about 90% (by weight) tin.

Claim 10 (withdrawn): The method of claim 7, further comprising said conductive pad abutting at least one layer of low k dielectric material.

Claim 11 (withdrawn): The method of claim 7, wherein providing at least one interlayer dielectric comprises providing at least one layer of carbon doped oxide.

Claim 12 (withdrawn): The method of claim 7, further comprising reflowing said high tin content solder plug to form a solder bump.

Claim 13 (withdrawn): The method of claim 12, wherein said wetting layer is substantially subsumed into said high tin content solder bump during said reflow.

Claim 14 (withdrawn): The method of claim 7, wherein forming said molybdenum-containing barrier layer comprises sputter depositing a molybdenum-containing material.

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Claim 15 (withdrawn): An electronic system, comprising:
an external substrate within a housing; and
at least one microelectronic device package attached to said external substrate, having at least one under bump metallization layer including:
an adhesion layer abutting a conductive pad;
a molybdenum-containing barrier layer abutting said adhesion layer;
a wetting layer abutting said molybdenum-containing barrier layer; and
high tin content solder material abutting said wetting layer; and
an input device interfaced with said external substrate; and
a display device interfaced with said external substrate.

Claim 16 (withdrawn): The system of claim 15, wherein said molybdenum-containing barrier layer comprises a material containing at least about 90% (atomic) molybdenum.

Claim 17 (withdrawn): The system of claim 15, wherein said high tin content solder material comprises a material containing at least about 90% (by weight) tin.

Claim 18 (withdrawn): The system of claim 15, further comprising said conductive pad

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abutting at least one layer of low k dielectric material.

Claim 19 (withdrawn): The system of claim 18, wherein said at least one layer of low-k dielectric material comprises at least one layer of carbon doped oxide.

Claim 20 (withdrawn): The system of claim 15, wherein said wetting layer is substantially subsumed in said high tin content solder material forming an intermetallic compound layer.